to the Reports realized how much oftener their papers would be referred to and quoted, and how much wider, therefore, would be their sphere of usefulness, *with* an index than *without*, we are sure that the future volumes would not be deficient in this great desideratum. J. A., Jr.

ART. XXIV.—*Die krankhaften Geschwülste. Dreissig Vorlesungen, etc.* Von RUDOLF VIRCHOW, etc. Zweiter Band. Zweite Hälfte. 8vo. pp. 468. Berlin: Hirschwald, 1865.

Morbid Tumours. Thirty Lectures, etc. By RUDOLF VIRCHOW, etc. Vol. II. Part 2. 8vo. pp. 468. Berlin: Hirschwald, 1865.

IN the numbers of this Journal for January and April, 1865, we presented a *résumé* of such portions of the above work as had then appeared. An apology may seem necessary for so long an interruption in the task we then proposed, and it is found in the delay which has attended the publication of the work itself. We had hoped that the concluding portion of the third volume would have been given to the world long since, and that we might consequently pursue the course we had marked out to its end. But the work remaining still incomplete, and the amount of material accumulating upon our hands, we offer the reader another instalment, in order that, at all events, our proposed plan may not be lost sight of. In the last article, above referred to, we were considering the nineteenth lecture, upon sarcomata, and had noticed their variety, structure, development, course, and prognosis.

We now proceed to take up the sarcomata as they affect the different organs of the body. And first the sarcomata of the bones. These are not designated as osteo-sarcoma—a term reserved for such as resemble more nearly the osteoma. They are divided into two groups—the periosteal or outer, and the inner or medullary; the former are hard, and in them the bony structure is preserved, becoming sometimes even eburnated; the latter are soft, and in their development the bony structure vanishes entirely, or a thin shield of bone alone is left. The capacity of developing ossific processes may be inherent in both, but the periosteal variety presents a bony basis with radiating shoots, while the most marked cases of the medullary form present only a bony shell or cyst, or a meshwork of bone. These distinctions were well marked by Sir Astley Cooper, and our author agrees with him that in one case the periosteum and in the other the medulla is the starting-point of the process, but differs from him in maintaining that the substance of the bone itself becomes involved sooner or later, so that in many instances it is merely a matter of choice whether they shall be designated as periosteal or medullary.

The periosteal sarcomata are divided into three varieties—fibro-, chondro-, and osteoid sarcoma. Their growth commences in the interior layer of the periosteum, the outer layers of which often continue for a long time as a sort of fibrous covering, thus preventing and retarding the growth. The cortical substance of the bone at first remains smooth beneath the tumour, but it soon becomes uneven, as the tumour attacks its surface and produces alterations in its structure to a given depth. If the tumour is situated over cortical substance of some thickness, as in the diaphyses of the long bones, its progress will be interrupted to some extent; if, however, it is situated upon their cancellated structure, as in the epiphyses of the long bones, it will soon extend to the medullary cavity, and then it becomes very difficult to distinguish a periosteal from a medullary sarcoma. The shape of the cells is quite various. The elongated cells are the most common, especially in the external layers; sometimes, however, the whole tumour will seem to be made up of these alone. Sometimes an intercellular substance is almost entirely wanting, and again it may be so developed as to recall the structure of fibroma. In the softer varieties the round cells are found, but more rarely and less diffused. Stellate and reticulate cells are also seldom found in the softer layers, and then not well pronounced; they are quite perfect in the vicinity of the periosteum, and most numerous in the osteoid and osseous parts surrounded by a thick, close cartilaginous or calcareous matrix. Multi-nucleated cells are often found, but they seldom attain the size of really giant cells. When they do, they indicate a tendency to the formation of medullary spaces in fibroid or osteoid layers, as is the case in the periosteal sarcoma of the maxilla, called epulis. These varieties of cells are frequently united in the same tumour, and clearly-marked types are seldom found among periosteal sarcomata. Although these tumours begin in the periosteum, they soon attack the outer surface of the bone, and still later the neighbouring soft parts. It is on account of this progressive infection that a superficial removal of the tumour is so often followed by a local recurrence either upon the bone or in the soft parts. This capacity of infection may also assume the form of a metastasis. The author narrates three cases which he has observed of this metastasis in periosteal ossifying sarcoma of the bones. Metastasis may occur either through the circulation of the lymph or of the blood. These tumours are distinguished from all others by the regularity with which the metastasis affects the lungs. They are also often removed without any recurrence and without metastasis. The author has seen one case of an amputated thigh in which after twenty years there has been no sign of any recurrence. If the tumour is removed sufficiently early—before there are secondary developments in the soft parts, before any infection has taken place—then there will be every chance of a successful result. The periosteal sarcoma of the maxillary bones offers a more favourable prognosis only because in this case the operation is undertaken earlier than it is likely to be when the bones of the extremities are the seat of the formation. The prognosis is good so long as the tumour is bounded by the layer of periosteum and the supervening fascia, but it becomes in the highest degree questionable so soon as the soft parts around the periosteum and fascia are infected. In the latter case the tumour not only grows with great energy, but the cells begin to develop increased action.

The history of epulis sarcomatosa (the term being applied to the tumour of the alveolar processes) is of special interest with reference to prognosis in periosteal sarcoma. It is composed of elongated and gigantic cells with many nuclei and of various shapes, thus partaking of the joint characteristics of fibro-plastic and myeloid elements. These latter cells are not true medullary cells, but they are hetero-plastic in their nature. They spring originally from the growing elements of the periosteum, which gradually enlarge, and increase the number of their nuclei; while other elements are transformed into ordinary elongated or reticulated cells, into cartilaginous or ossific corpuscles. But this heteroplastic origin by no means renders the tumour in a strictly clinical sense, malignant. The author cannot recall a single case where the process has spread from an original epulis to an internal organ by metastasis, or where even it has advanced to the nearest lymph-glands. But, on the other hand, there is a local malignity manifested in the excessive capacity of reproduction and by the progressive character of the growth. It is a well-established fact that the superficial removal of epulis is promptly followed by a recurrence, and this last grows much more rapidly than the original tumour. Each recurrence retains the microscopic character of the original tumour entirely unaltered. As a rule, the recurrence takes place when the extirpation of the tumour is not accompanied by the removal of the corresponding portion of bone. The tendency to advance is shown in the ever-increasing portion of the bone involved, both as to its surface and as to the deeper portions of the osseous substance. The development usually commences between the teeth, and especially between the back teeth of the upper jaw, and from this point it may extend over a great part of the side involved. The growth becomes more and more prominent, and is at first painless; then it becomes vascular; and later it may ulcerate and bleed, become disorganized and painful. Still even the worst cases may offer a favourable prognosis, if a sufficient quantity of the bone is removed.

The medullary osteoid sarcomata, or those developed upon the inner surface of bone, in distinction from the periosteal forms which we have been considering, present a marked difference in their appearance. They are, as a rule, chiefly of a soft tissue, which is often also highly vascular, even anastomotic; while, on the other hand, the osseous tissue is either entirely wanting, or exists only in the form of a capsule or shell, or, more rarely still, permeates the tumour as a sort of network. These tumours correspond to many of the old descriptions of spina ventosa and fungus, and in more modern times the most of them have been considered cancers; latterly the name of myeloid tumour has been applied to them. They proceed, indeed, from the medulla—and hence the term *myelogen*—but they are rarely developed from the medullary cavity. It is generally the spongy bones or portions of them that suffer. Thus, in the long bones it is the articular extremities, in the flat bones the diploe of the cranial and pelvic bones, the bodies of the vertebræ, the small bones of the hand and foot, and the spongy substance of the maxillary bones. They are developed more frequently about the time of puberty, and hence the inference is fair, that the developing medulla is the place of predilection. This, however, is an exception to the general rule of sarcoma, since, as has been previously stated, the sarcomata belong, as a class, to the later periods of life. They are not merely a hyperplasy of the medulla, for then we should have either a myxoma or a medullary osteoma, growths already described, and from which those we are now considering are distinguished by the abundance and richness of the cells, and often by the excessive development of elongated cells, which certainly do not belong to the ordinary elements of the medulla. But it must be allowed that the myxoma and the medullary osteoma may furnish a basis for the development of this form of sarcoma.

The medullary sarcoma having a thin shell is that commonly described as cysto-sarcoma or as a myeloid tumour. It is found chiefly upon the ends of the long bones, especially at the articulating surfaces of the knee-joint, both in the femur and the tibia, at the head of the humerus, and at the head of the ulna. It is sometimes enormously large, of an irregular globular aspect, and in size bearing no relation to the bone from which it proceeds. These tumours are sometimes completely covered with a thin shell of bone; on the other hand, and almost invariably when of very large size, there are soft spots which may fluctuate and even in some cases pulsate; in such spots the interior mass has broken through the bony shell. The interior mass may be atheromatous or perfectly soft; in the latter case it is red and highly vascular, and sometimes even there may be hemorrhagic deposits. The bony rim is formed by a new superficial deposit of bony matter proceeding from the periosteum. The tumour is sometimes traversed by thin bony partitions, so that distinct lobes may be observed each with its own shell wall and soft interior structure. The bony portion of the tumour is, therefore, chiefly a new formation, and of a thick compact character, sometimes like ivory, and corresponding in structure to the normal characteristics of the cortical substance in bone. The soft portions of the tumour are composed, to a greater or less degree, of the giant cells, and some sections seem to be made up entirely of these; but they are never the only constituent, and we find besides caudated cells with and almost without intercellular tissue, and small round cells; very often, too, a portion of the elements have become completely transformed into fat. There are also forms of medullary sarcoma without a bony shell, and these it is difficult to distinguish from the cancer of the bones, indeed they are often confounded together, cancer considered as sarcoma, and *vice versâ.* Especially is this true of the carcinoma fasciculatum.

As to the prognosis of these tumours there is much difference of opinion. It has been already remarked that epulis, aside from its local malignity, gives no cause for suspicion, but it should be extirpated comparatively early. The myeloid tumours with the giant cells of many nuclei cannot be considered as non-malignant. These cells are hetero-plastic elements and not hyper-plastic. The giant-celled sarcoma of the bones produce a local infection and develop hetero-plastic nodules in their proximity. They resemble in character the fibro-plastic tumours, the possible malignity of which is no longer doubted. On the other hand, the majority of these tumours by free and complete extirpation give such favourable results that they may be almost considered benign. But in practice it is well to lay it down as a rule, that in every sarcoma there is a period when it is more local, and in so far innocent, in which it is advisable to operate, but that each may take on a capacity of generalization, and hence become malignant. In other words, an early and complete removal is the only safeguard against recurrence.

We pass to the consideration of sarcoma of the breast. It may affect only certain portions of the gland or its entire extent. In the former case, which is the more common, it shows itself as a nodule, more or less lobulated, at first readily movable beneath the skin; in the latter, which is the more rare, it is a diffused enlargement, resembling hypertrophy, and of very considerable size and weight. Tumours as large as one's head and larger are not exceptions. They may have a rough nodular surface, or they may be as smooth as a capsular lipoma. The point of departure of these tumours is most generally from the lacteal sinus and the ducts in the vicinity of the nipple, more seldom from the periphery of the lobules of the gland. They have a tendency always to local infection, and gradually involve the surrounding adipose tissue, sometimes developing in it larger masses than in the gland itself. The skin is soon involved, as is indicated by the adhesions formed, and becomes permeated in its entire thickness by the new formation, until at last it is broken through, and ulceration ensues. The tumour is locally malignant in so far as, like all heteroplastic formations, it equally attacks structures composed of the most varied elements. The same course may be apparent, whether the tumour be of the solid or of the cystic variety. The former are generally situated more in the periphery, the latter in the centre of the gland. The largest tumors are, as a rule, of the cystic variety. The tissue of these tumours, after they have attained any size, is quite varied. Here and there it has a firm whitish almost fibrous character; elsewhere it is soft, moist, transparent, even gelatinous; and again it has a soft, whitish medullary, or else a reddish or dark reddish appearance. Some of these characteristics might justly lead to the suspicion of a fibroma or myxoma, but the abundance of cells determines the sarcomatous character. The cells themselves are caudated or alveolar or round, the latter by far the most frequent.

In the cystoid forms the cysts vary in size from that of a hemp seed to that of a walnut and even larger. The walls of the cysts are sometimes so compressed that they appear in a transverse section like fissures. The contents of the cysts are sometimes pure serum, or a milky substance mingled with fat globules, or more gelatinous and very glutinous. Sometimes hemorrhagic deposits are added to these, giving a reddish or, after longer continuance, a brownish or greenish appearance, and in the latter case crystals of cholesterin are not unfrequently found. These cysts are sometimes empty, or they may contain solid outgrowths from the wall, like warts or polypi, and they may even be filled with these outgrowths. A section of these solid contents will present very much the appearance of the arbor vitæ of the cerebellum. As these increase, the walls of the cysts become thinner and thinner, till at last they perforate it, and appear upon the surface like fungoid ulcerations.

The sarcoma of the breast is generally, though not always, a disease of the earlier years of mature life. They begin to grow shortly after the period of puberty, and then advance regularly or with periods of interruption until they arrive at, perhaps, the most colossal dimensions. By both these characteristics they can be distinguished from cancer, which belongs rather to the later years of life, and seldom reaches a similar size. Their extirpation is generally followed by a successful result, but still they are sometimes reproduced even in the scar of an operation. This is not to be wondered at when we remember that there is a local infection; and that, on the other hand, the reproduction may be due to the growth of an independent nodule which existed at the time of the operation, and which was allowed to remain. But the malignancy of sarcoma of the breast is not limited to a local recurrence. The axillary glands, indeed, remain untouched, the reverse of which is true in cancer, but metastases to the internal organs, especially to the lungs, do occur. The author considers it as established, that sarcoma of the breast possesses a limited degree of malignity, but still a perfect capacity of metastasis.

The occurrence of a veritable sarcoma in the ovary is one of the greatest rarities; the tumours generally so considered are, according to the author's view, cystoma.

We have lingered long over this lecture on account of its inherent worth and the exposition it gives of the author's whole system of onkology. Much of it, of course, we have been obliged to pass over. As the author says, on no other point have theory and practice fought harder battles than on this whole subject of sarcoma, and no other possesses such difficulty in diagnosis. As the final practical suggestion, the author recommends an early operation in all cases.

The next lecture is upon granulation tumours: these are made up of elements of a transitory character; and decay, softening, and ulceration are the necessary termination of their existence. The location of the tumour is of little importance, quite the opposite of sarcoma, and it is less so the more the affection assumes a general character, developing multiple eruptions. Then the inflammatory character of the process is most clearly manifest, and it is impossible to distinguish between inflammation and the formation of the tumour. It is generally in the connective and similar tissues that the development commences. There is first cell proliferation, then hypertrophy, followed by the development of new nuclei or nucleation; the cells then divide up and as the acme of development there are numbers of small cells, mostly round, with large nuclei, which have a certain similarity to the so-called lymph cells. If the tissue is cut or torn, we see a large number of free, round or slightly oval, pale, granular nuclei with one or more nucleoli. Hence it is evident that we have cellular tissue of a low type slightly developed. Sometimes these small cells undergo no further development, and an early retrogression sets in. At other times, the cells attain some size, even that of the mucous corpuscles. Upon the edges of the tumour we may find the well-known elements of the ordinary connective tissue, anastomosing, cuneiform and star-shaped cells, surrounded by more or less intercellular substance. The one important fact, however, is that it is a development of a low perishable order of tissue; the richer it is in cells, the more specific is it; and the more numerous the cells, the smaller are they and the less developed. There are three varieties of tumours which the author brings together under this head. The first is the gummy tumour, developed as the specific product of syphilis; the second, lupus; and the third, elephantiasis Græcorum, or lepra Arabum, leprosy.

The gummy tumour is, of course, acknowledged to be the result of constitutional syphilis; it appears in nodules like lupus and elephantiasis; in former times it was even called syphilitic tubercle. The name syphiloma, used by Wagner, of Leipzig, is not applicable, because there is a whole series of syphilitic tumours, *e. g.*, syphilitic exostosis, which are not gummy tumours. The syphilitic hyperplastic formations are altogether different from these. In the course of syphilis there are two distinct series of productions. First, those which, as we have said, are purely hyperplastic, which, in other words, develop in every tissue homologous products; in bone, osseous tissue; in an organ containing connective tissue, the same tissue; in a lymph gland, lymphatic elements in increased quantity, and so on. These do not belong positively to a given period in the disease, but they denote the more simple and slighter degrees of irritation. Some of them are manifested in the secondary and some in the tertiary periods; indeed, syphilographers have not yet come to an agreement as to the chronological arrangement of these formations. Exostosis or hyperplasy of bone is generally regarded as a tertiary and angina or hyperplastic enlargement of the tonsils as a secondary phenomenon; and yet the angina has the same relation to the tonsils that the exostosis has to the bones. It is not to be denied that in the course of syphilis some local affections appear earlier and others later; this fact was recognized by the oldest writers on syphilis. But the more rigid chronological divisions of later days do not harmonize with experience, for it must be confessed by all that sometimes tertiary phenomena are found in the secondary period, and *vice versâ*. This much is true, however, that there is a certain regularity in the succession of the organs affected. Thus, the infection proceeds from the chancre, the syphilitic mother nodule, to the lymphatic glands, then to the external organs, and then to the internal organs (visceral syphilis). Nor is this rule absolute, but yet it is true in the majority of cases. As to the form of the disease affecting the different organs we may distinguish a graver and a lighter, and, in general, it may be said, that the more severe belong to the later periods, the less severe to the earlier periods of the local disease, so that it is thus possible to have at the same time in one organ the more severe (tertiary) form of the disease, and in another the less severe (the secondary). These last include what we have just spoken of as simply irritative inflammatory or hyperplastic formations. Under the former, the more severe types, the author includes the gummy tumours, which are almost heteroplastic. Nor do they belong exclusively to any given period of the disease; the original indurated chancre is in itself a gummy ulcer and not unfrequently proceeds from a gummy nodule. The author does not think that mercurial treatment has any special agency in developing gummy tumours.

The gummy tumours were first recognized upon the surface of the bones. For a long time they were confounded with nodes and exostoses. Subsequently, they were considered as an exudation between the periosteum and the bone. Closer study has shown, however, that instead of an exudation they consist of soft, rapidly developing tissue, not lying between the periosteum and the bone, but developed from the inner layer of the periosteum and resembling the mucous tissue. This tissue is made up of a delicate, viscid, intercellular substance, sometimes more or less fibrous, with cells sometimes caudate, sometimes round, smaller or larger, generally pale, having one, seldom two or more, pale nuclei. They do not always have this apparently fluid consistency, for they may be elastic and movable, and yet they are quite firm and hard; in this case the intercellular substance is more fibrous and the cells are star shaped with one or more nuclei, or caudate or round, in great abundance, but yet of low development. The next step may be suppuration, but this is rarely the case. Their decay follows very shortly, for the gummy tumours have generally but a short existence. If they have a longer existence, it is not so much due to the persistence of the elements as to the proximate infection. They are generally subjected to the fatty metamorphosis, and if the intercellular substance has been quite firm and fibrinous, they present a cheesy appearance quite similar to tuberculous matter. This is not the beginning of a process, it is no crude material, no exudation derived from the blood, but, on the contrary, dead tissue, which may remain *in loco* a longer or shorter time.

The further course of these tumours is as follows: they may be absorbed and there may be left a slight flattening or even an actual depression in place of the previous tumour, and this is especially the case if the tumour has extended beyond the periosteum and involved the superficial layers of bone; these portions of bone are then involved in the fatty degeneration, and, when absorbed, there is an actual loss of substance. Sometimes, however, as is often seen in the os frontis, this depression is made still more apparent by a coexisting hyperplasy or thickening of the bone in the immediate vicinity. Again, the gummy tumours, especially when developed in the inner organs, may remain as a permanent nodule, and this is more apt to be the case when there has been a callous-like thickening of the neighbouring tissue. And finally, they may terminate in ulceration.

We see, therefore, that the pre-existing local condition is that of action and irritation, and the gummy tumour is regarded as the specific product of syphilis not so much because its microscopic elements are specific in their nature, for the same elements may be found in atheroma of the arteries for instance, but because it is found in organs which are the precise points of election for syphilis and in which nothing similar occurs, and, according to the author's opinion, its existence is due to the most complete action of the specific virus.

We hasten to pass in review the other organs in which the gummy tumours are found. The author, as has been stated, considers the indurated chancre as only another manifestation of the same formation, proceeding often from a gummy nodule, and resulting in a gummy ulcer. The fully-developed gummy tumour is found in the skin in a nodular form, either singly, or in groups or masses which consist of a multitude of individual nodules. The seat of the nodule is in the cutis itself. These soon become ulcerated, the ulcers being deep and coated with a thin foul secretion. Left to themselves, they still continue to extend; by proper treatment, especially by local treatment with sublimate, they rapidly heal, leaving small white scars with a strong tendency to retraction. These scars may again become the seat of new formations, and these have been designated cheloid. The third variety of gummy tumours found in the skin and mucous membrane is the condyloma. These formations belong to the earlier stages of the disease, and correspond to the second period; they have a broad base or are pointed; the former is an actual product of the skin, while the latter contains an excessive amount of hypertrophied epidermis. These also tend to ulceration, and yield readily to treatment. They are found chiefly in spots where the epidermis is tender, or where it passes into the mucous membrane, or on the mucous membrane itself, especially in the pharynx. These affections of the skin and mucous membrane are often complicated with affections of the lymphatic glands—buboes—and these may undergo an amyloid degeneration.

The gummy tumours of the internal organs—the so-called visceral syphilis—undergo more frequently the cheesy metamorphosis. The liver has long been known as the most frequent seat of such deposits, and in it we can pursue our study to the best advantage. Generally upon the surface of the liver, beneath a thickened portion of the albuginea, frequently beneath an adhesion between the liver and diaphragm, we find a star-shaped depression; from this point a callous tissue extends into the substance of the organ, and imbedded in this lie the nodules, in uneven, round, or long masses. Sometimes only one such spot is found; generally there are several, connected together by broad fibrinous bands, and thus forming lobular retractions and divisions of the surface. They are generally upon the superior surface of the liver, especially beside the suspensory ligament, and from this point they may extend so far into the substance of the organ as to reach the portal vein, and thus produce a complete division between the right and left lobes. Others belong more to the interior of the organ, and often have their origin in Glisson's capsule. Whether upon the surface or in the interior, the nodules are generally enveloped in a thick capsule of connective tissue, of a whitish stringy character. The microscopic examination reveals but little regular structure; the whole substance seems made up of a more or less fibrous mass, richly laden with fat-globules. The author, in one of his earlier works, has shown that this is not the only type of syphilis affecting the liver. He has there shown that there are three distinct varieties, viz., perihepatitis, simple interstitial hepatitis, and gummy hepatitis, the first of which is almost always united with one of the other two. The same process as has here been described may be observed in other organs, as, *e.g.*, in sarcocele syphilitica. We must pass over the other developments of syphilis in the muscles, the heart, the lungs, the membranes of the brain, and the brain itself, for we trespass upon our space, and we have already given enough to show the author's mode of investigation, and a general view of his opinions.

We cannot avoid, however, giving the reader some of the remarks with which he concludes this portion of the subject. He divides the local syphilitic processes into three groups—the simply irritative (inflammatory, hyperplastic), the gummy, and the amyloid; the first two belong actually to syphilis, the last to the syphilitic cachexia. Neither of the first two has added anything foreign to the natural elements of the body—anything in the sense of specific or heterologous, anything peculiar alone to syphilis. Every year, with all its abundance of new material for observation, confirms the author in the opinion that there is no more marked difference between the gummy tumour, with its mass of syphilitic granulations, and a simple inflammatory granulation, than there is between roseola syphilitica and simple roseola. All admit that the same virus is within the body infectious, without contagious. The whole course of syphilis has much in common with that of malignant tumours. It begins, as a rule, with the indurated chancre; this induration corresponds to the mother nodule of the malignant tumour. It may extend in depth and superficially. Then the lymph-glands in the direction of the lymph-current are affected. Then the disease appears in remote points, at first in lighter, simply irritative forms, afterwards in the more severe, and at last in the gummy formations. In these last the induration of the mother nodule is repeated with the modifications imposed upon it by the nature of the local matrix. This is what in all other relations would be designated as metastasis. Whether this occurs through the blood and the lymph, or through cells, is not yet clearly determined. This much is certain, that sooner or later there is an infection of the blood—a dyscrasia is found to exist. Nor is this a permanent state. The idea of latency is to be explained by a metastasis already existing at the period when the original affection was healed, and which only after a certain period makes itself mánifest. And so with regard to the tertiary products; if we give up the idea of a permanent dyscrasia, we must either admit a general diathesis of the whole body, a permanent syphilitic condition of all its elements, or else a still existing nidus, a deposit of virus in some given spot; and it is this view that the author does not hesitate to adopt. Thus, after the healing of a chancre and of the symptomatic buboes, a syphilitic hepatitis may continue to exist, without at first developing any symptoms; but upon some casual provocation it may be again excited, may attain increased development, and may become in turn infectious. By infection and the development of a new local nidus the process is made manifest. These views find their application in the history of congenital syphilis; but, tempting as is the theme, we must pass on to the consideration of other subjects, commending these pages of our author, upon syphilis, to the careful perusal of the reader.

The second form of granulation tumour is lupus, though the term tumour hardly seems applicable to it; but it is a conglomeration of individual nodules, and hence it is to be considered among tumours. It is a process which affects the whole thickness of the cutis; a granulation process in the connective tissue, beginning at first superficially and extending deeper and deeper, passing into the subcutaneous tissue, and in many cases even reaching the bone. Frequently extending upon the mucous membrane, creeping into the nose, upon the lips, and the hard palate, it presents small uneven bunches, which do not proceed from the epithelium, but from the connective tissue. Everywhere the formation of lupus consists of newly-developed granulation tissue, very soft, and often very vascular, containing, as a rule, small round cells with simple nuclei and one or two nucleoli surrounded by a delicate intercellular substance. Ulceration is the most common sequel to these formations; superficial crusts are formed, the substance beneath goes on decaying, the tissues are destroyed, and an ulcer steadily increasing in depth ensues, thus giving us the type of lupus exedens. More rarely, even before ulceration has taken place, the process becomes stationary; the cells yield probably to a fatty metamorphosis, and are subject to absorption, while the remaining tissue becomes thickened and retracted, thus leaving white cicatrices, with loss of substance and superficial depression, like the syphilitic gummy tumours upon the surface of bones. This corresponds to lupus non exedens. Again, we may have this thickening and retraction at one point, while at another, generally on the periphery, ulceration may be going on, stretching further and further. This is the lupus serpiginosus of Hebra. The disease exists as the result of a certain predisposition, but whether as the result of a scrofulous or any determined dyscrasia, whether from greater vulnerability of the skin or from local tendencies, the author will not pretend to decide. The only safe and sure mode of treatment is local. The author recommends the use of kali causticum, and has only seen a recurrence where the caustic has not been applied to all the diseased spots.[1]

We pass over the third division—elephantiasis—because it possesses for us less practical value, inasmuch as the disease is so rare with us. The author treats the subject with his usual fulness of detail and clearness of outline, and it is a valuable contribution to our knowledge of this disease.

The twenty first lecture is upon lymphatic tumours. The author first divides these into the hyperplastic, *i.e.*, pre-existing lymphatic tissue abnormally developed; and heteroplastic, *i.e.*, formations of lymphatic elements where none previously existed. He then proceeds to explain the origin and define the limits of the terms scrofula, struma, and tubercle. After setting apart the *strumas*, as affecting special glandular structures, for another lecture, he proceeds to the lymphatic tumours, including therein all those formations which are generally supposed to result from a lymphatic dyscrasia. The products of leucæmia afford occasion for a continuation of the discussion of the question of priority between our distinguished author and Prof. Bennett, of Edinburgh. These products are hyperplastic in the glands in which they are found—the lymph-glands and the spleen, for instance—but they develop, as if by local infection, heteroplastic formations in parts where no lymph elements normally exist. The author's views upon leucæmia and leucocytosis are doubtless familiar to most of our readers, through his work on *Cellular Pathology*. The pathological manifestations of typhoid fever, as in the glands of Peyer and in the solitary follicles of the rectum, are then cursorily treated, as occupying a place midway between leucæmia and scrofulosis. The latter is then considered, and we shrink from conducting our readers into the much-disputed territory of scrofula and tubercle. Discussions which have waxed and waned for generations are appalling, and we bide the time when these perplexing questions shall be more definitely settled. At some future day we shall hope to follow the author through the third and closing volume. E. T. C.

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[1] We have seen numerous cases treated at Hebra's clinic. He uses the pencil of nitrate of silver, the actual cautery, and the galvano-caustic, sometimes giving the patient his choice of the three. They generally prefer the actual cautery, asserting that the pain, though more severe, is also more transient. When the nitrate of silver is used, he insists that it should be in no superficial manner, and any one who has seen him apply it, must have been convinced that it was done most thoroughly.

ART. XXV.—*Fecundity, Fertility, Sterility, and Allied Topics.* By J. MATTHEWS DUNCAN, A. M., M. D., etc. 8vo. pp. 378. Edinburgh: A. & C. Black, 1866.

Researches in Obstetrics. By the same Author. 8vo. pp. 467. New York: Wm. Wood & Co., 1868.

THE work on Fecundity, Fertility, etc., by Dr. Duncan, of Edinburgh, is a most valuable and interesting one. So far as the researches of the author go in regard to the conditions of 16,953 legitimate births registered in Edinburgh and Glasgow, Scotland, the conclusions he has drawn from them appear to be fully sustained. But for their establishment, as positive physiological truths, it is necessary that their agreement should be tested with similar inquiries instituted in respect to the reproductive function in women among different peoples inhabiting different climates and different sections of country.

We believe that our best plan, as well to evince our high estimate of the value of Dr. D.'s labours in elucidation of the several important questions discussed by him, as to instruct our readers in respect to the conclusions to which his researches have led him, would be to present simply his general conclusions on each question discussed, and pretty much in his own words. We had concluded to pursue this course, but in proceeding to carry it out we found it would occupy more space than could with propriety be spared for its proper accomplishment, we have been obliged, in consequence, to confine it to the first four of the ten parts into which the volume before us is divided.

In the first part are discussed the variations in the fecundity and fertility of women according to age.

a. The actual fertility of the female population as a whole at different ages.

From the data examined by Dr. D. in elucidation of this inquiry, he concludes that, 1. The actual, not the relative, fertility of the Scotch female population chiefly made use of in the inquiry, as a whole, at different ages, increases from the commencement of the child-bearing period of life, until the age of thirty is reached, and then declines until its extinction together with the child-bearing faculty. 2. The actual fertility is much greater before the climax, thirty years, is reached, than after it is passed. 3. At least three-fifths of the population are recruited from women not exceeding thirty years of age.

b. The comparative fertility of the female population at different ages. In respect to this question, the conclusions of Dr. D. are:—

1. It increases gradually from the commencement of the child-bearing period of life until about the age of thirty years is reached, and then it still more